

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (Currently amended): An arc welding control method for welding a member to be welded, comprising the steps of:

repeating alternately a short circuit period allowing a welding wire to short circuit with respect to the member to be welded and an arc period allowing arc recurrence and arc discharge; and

controlling a welding current to be steeply lowered just before the arc recurrence; and

controlling ~~a~~the welding output current just after arc recurrence to be higher than a peak current of a welding output current just before arc recurrence in the short circuit period for a set given period.

Claim 2 (Cancelled):

Claim 3 (Currently amended): An arc welding control method as set forth in Claim 1, wherein the welding output current just after arc recurrence is controlled to have a value equal to the sum of ~~the welding current value just before arc recurrence~~ the peak

current of the welding output current in the short circuit period and a given value.

Claim 4 (Currently amended): An arc welding control method as set forth in Claim 1, wherein the welding output current just after arc recurrence is controlled to have a value obtained by multiplying ~~the welding current value just before arc recurrence~~ the peak current of the welding output current in the short circuit period by a given magnification.

Claim 5 (Previously presented): An arc welding control method as set forth in Claim 1, wherein the welding output current just after arc recurrence is controlled to increase and decrease according to a difference between a welding output voltage just before arc recurrence and a set voltage previously set.

Claim 6 (Currently amended): An arc welding machine for welding a member to be welded by repeating alternately a short circuit period allowing a welding wire to short circuit with respect to the member to be welded and an arc period allowing arc recurrence and arc discharge, comprising:

a welding current detect part for detecting a welding output current; a welding voltage detect part for detecting a welding output voltage;

a short circuit arc judge part for judging whether a welding state is in the short circuit period or in the arc period; a setting part for setting at least one of the set values of a current and a voltage in the short circuit period and in the arc period and outputting the set value;

an arc initial control part for inputting therein the respective outputs of the welding current detect part, the welding voltage detect part and the setting part, setting a welding output current at an arc recurrence initial time, and outputting the thus set welding output current;

a drive part for inputting therein the output of the short circuit arc judge part, and controlling such inputs selectively according to the arc state; and

a timer part for inputting therein the output of the short circuit arc judge part, timing a given time starting from arc occurrence, setting an arc initial control time, and outputting the arc initial control time to the drive part,

wherein the arc initial control part controls a welding current to be steeply lowered just before the arc recurrence;

and

wherein the arc initial control part controls a welding current at an arc recurrence time in the arc initial control time set by the timer part to be higher than ~~a welding current just before arc recurrence~~ a peak current of the welding current in the short circuit period.

Claim 7 (Original): An arc welding machine as set forth in Claim 6, wherein the setting part sets the set current value of the arc initial control part and the set time of the timer part, using at least one of a set current value, a set voltage value set, the quantity of feed of a wire, the kind of a sealed gas, the material of the wire, the diameter of the wire and a welding method respectively set in the setting part.

Claim 8 (Cancelled):

Claim 9 (Currently amended): An arc welding machine as set forth in Claim 6, wherein the arc initial control part controls the welding output current just after arc recurrence to have a value obtained by adding a given value to ~~the welding current value just before arc recurrence~~ the peak current of the welding output current in the short circuit period.

Claim 10 (Currently amended): An arc welding machine as set forth in Claim 6, wherein the arc initial control part controls the welding output current just after arc recurrence to have a value obtained by multiplying ~~the welding current value just before~~
are recurrence the peak current of the welding output current in
the short circuit period by a given magnification.

Claim 11 (Previously presented): An arc welding machine as set forth in Claim 6, wherein the arc initial control part controls the welding output current just after arc recurrence to increase or decrease according to a difference between the welding output voltage just before arc recurrence and the set voltage set by the setting part.

Claim 12 (Currently amended): An arc welding control method as set forth in Claim 1 ~~or 2~~, wherein the welding output current just after arc recurrence is controlled to have a fixed value which is set previously.

Claim 13 (Currently amended): An arc welding machine as set forth in ~~any one of~~ Claim[[s]] 6 ~~to 8~~, wherein the welding output

current just after arc recurrence is controlled to have a fixed value which is set previously.

Claim 14 (New): An arc welding control method for welding a member to be welded, comprising the steps of:

repeating alternately a short circuit period allowing a welding wire to short circuit with respect to the member to be welded and an arc period allowing arc recurrence and arc discharge; and

controlling a welding output current just after arc recurrence to be constantly higher than a welding output current just before arc recurrence for a set given period starting from arc recurrence.

Claim 15 (New): An arc welding machine for welding a member to be welded by repeating alternately a short circuit period allowing a welding wire to short circuit with respect to the member to be welded and an arc period allowing arc recurrence and arc discharge, comprising:

a welding current detect part for detecting a welding output current; a welding voltage detect part for detecting a welding output voltage;

a short circuit arc judge part for judging whether a welding state is in the short circuit period or in the arc period; a setting part for setting at least one of the set values of a current and a voltage in the short circuit period and in the arc period and outputting the set value;

an arc initial control part for inputting thereinto the respective outputs of the welding current detect part, the welding voltage detect part and the setting part, setting a welding output current at an arc recurrence initial time, and outputting the thus set welding output current;

a drive part for inputting thereinto the output of the short circuit arc judge part, and controlling such inputs selectively according to the arc state; and

a timer part for inputting thereinto the output of the short circuit arc judge part, timing a given time starting from arc occurrence, setting an arc initial control time, and outputting the arc initial control time to the drive part,

wherein the arc initial control part controls a welding current at an arc recurrence time for the arc initial control time period set by the timer part to be constantly higher than a welding current just before arc recurrence, wherein the arc initial control time period starts from arc recurrence.